



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,963	09/18/2003	Motoyoshi Murakami	10873.1304US01	8328

7590 07/03/2006

HAMRE, SCHUMANN, MUELLER & LARSON PC
P O BOX 2902-0902
Minneapolis, MN 55402

EXAMINER

DAVIS, DAVID DONALD

ART UNIT	PAPER NUMBER
----------	--------------

2627

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,963

Applicant(s)

MURAKAMI ET AL.

Examiner

David D. Davis

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 9-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 9-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group and Species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 31, 2005.

Claim Rejections - 35 USC § 112

2. Claim 1 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does mentions “super-lattice” in the paragraph bridging pages 42 and 43. However, the specification does not enable a skilled artisan at to make and/or use a super lattice structure in a recording layer.

3. Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, with respect to claim 2, the specification does not enable a skilled artisan to make and/or use a recording medium satisfying the product of the coercive force and saturated magnetization relationship that approaches infinity (∞).

Claim Rejections - 35 USC § 102/103

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-8 and 28 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shiratori et al (US 6,027,825). As per claims 1 and 28, Shiratori et al shows in figure 23A a magnetic recording medium including a disk substrate and a recording layer 1704. The recording layer 1704 of Shiratori et al as disclosed in column 15, lines 11-55 has magnetic anisotropy along a direction perpendicular to a surface of

Art Unit: 2627

the disk substrate. Also, disclosed in Shiratori et al column 15, lines 11-55, is the recording layer 1704 having a super-latticed structure by with the recording layer is formed so that a product of a coercive force H_c and saturated magnetization M_s of the recording layer 1704 ($M_s \cdot H_c$) at room temperatures is increased sufficiently so that a shortest mark length of the recording layer 1704 can be decreased to a desired value.

As per claim 3, Shiratori et al shows in figure 23A a reproduction layer 1701 formed between the recording layer 1704 and the disk substrate for reproducing information recorded in the recording layer 1704. Figure 23A also shows an intermediate layer 1703 formed between the reproduction layer 1701 and the recording layer 1704 for controlling exchange coupling between the reproduction layer 1701 and the recording layer 1704. The recorded information is thermomagnetically recorded as magnetic domains in the recording layer 1704, the magnetic domains are transcribed into the reproduction layer 1701, and a domain wall between the magnetic domains that are transcribed into the reproduction layer 1701 shifts along a direction parallel to a surface of the reproduction layer 1701 so that the recorded information is reproduced. See Shiratori et al column 15, lines 11-55.

As per claim 5, the table in column 15 of Shiratori shows the recording layer including at least Tb, Fe and Co. As per claim 6, figure 12 of Shiratori, for example shows the recording layer being laminated.

Regarding claim 2, the magnetic recording medium describe in column 15, lines 11-55 and shown in figure 23A of Shiratori et al is considered to flow from the claimed product relationship of the coercive force and the saturated magnetization.

Assuming arguendo that the recording layer of Shiratori et al is not a super latticed structure, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the recording layer of Shiratori et al with a supper lattice structure to provide a regular, periodic configuration of points, particles, or objects throughout an area or a space, especially the arrangement of ions or molecules in a crystalline solid, as defined by *The American Heritage® Dictionary of the English Language, Fourth Edition*.

Also, assuming arguendo that the magnetic head of Shiratori et al is silent as to the claimed product relationship, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a magnetic medium that flowed from the claimed product relationship of the coercive force and the saturated magnetization so that “the operation of the medium is stabilized”. See column 15, lines 52-55 of Shiratori et al.

Regarding claims 4 and 7-8, Shiratori et al is considered to disclose a recording layer having a length or thickness 2 μm or less. Assuming arguendo that Shiratori et al is silent as to a short mark length or thickness 2 μm or less, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the magnetic recording medium of Shiratori et al with a short mark length or thickness 2 μm or less, which is well within the purview of a skilled artisan and absent an unobvious result, to provide a medium as thin as possible while maintaining stabilization.

Response to Arguments

8. Applicant's arguments filed April 28, 2006 have been fully considered but they are not persuasive. Applicant asserts that the applied prior art does not teach or disclose a recording

Art Unit: 2627

layer with a super lattice structure. As stated supra, also, disclosed in Shiratori et al column 15, lines 11-55, is the recording layer 1704 having a super-latticed structure by with the recording layer is formed so that a product of a coercive force H_c and saturated magnetization M_s of the recording layer 1704 ($M_s \cdot H_c$) at room temperatures is increased sufficiently so that a shortest mark length of the recording layer 1704 can be decreased to a desired value.

Assuming arguendo that the recording layer of Shiratori et al is not a super latticed structure, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the recording layer of Shiratori et al with a supper lattice structure to provide a regular, periodic configuration of points, particles, or objects throughout an area or a space, especially the arrangement of ions or molecules in a crystalline solid, as defined by *The American Heritage® Dictionary of the English Language, Fourth Edition*.


Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is 571-272-7572. The examiner can normally be reached on Monday thru Friday between 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne D. Bost can be reached on 571-272-7023. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David D. Davis
Primary Examiner
Art Unit 2627

ddd